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A
COMPLETE GUIDE
FOR THE
MANAGEMENT
OF
B E E S

THROUGHOUT THE YEAR;
CONTAINING

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|--|---|
| 1. A Description of the new-invented Hives, and the Manner of using them, so as to take the Honey and Wax without destroying the Bees. | 4. Of separating the Honey from the Wax. |
| 2. Description of the new-invented Bee-House, and its most proper Situation. | 5. Of feeding Bees in the Winter. |
| 3. The proper Method of Swarming and Hiving Bees. | 6. Of the Enemies and Diseases to which Bees are subject, and their Remedies. |
| | 7. Of the Queen Bee, working Bee, and Drone. |
| | 8. Of the Generation of Bees. |
| | 9. Directions to make Mead. |

By DANIEL WILDMAN.

The FIFTH EDITION, with ADDITIONS,
Illustrated with COPPER-PLATES.

————— So work the Honey Bees ;
Creatures that, by Rule in Nature, teach
The Art of Order to a peopled Kingdom.

SHAKESPEAR.

L O N D O N :

Printed for the AUTHOR, and Sold by him, at his Bee
and Honey Warehouse, No. 326, HOLBORN ;

Where the purest Virgin Honey may be had, and any Quan-
tity of his New-invented Hives on the shortest Notice.

M.DCC.LXXXV.

[PRICE ONE SHILLING and SIXPENCE.]

Entered at Stationers-Hall, as the
Act directs.

EXPLANATION of the PLATES.

PLATE I.

a The working Bee.

b The Queen.

c The Drone.

No. 1. The flat-topped Straw Hive.—*d* the Slider; *e* the Grate for Communication between the Hives; *f* the Door or Entrance into the Hive.

No. 2. The Mahogany Hive with Partitions, and Glassess on the Top.—*g g g* are the Partitions; *b b b b* are the narrow Sliders that draw out at Top, to facilitate the taking out of the Partitions.

No. 3. The Mahogany Hive with Glasse on the Top, without Partitions.—*i* is the Side that is to be placed next the Window; *k k* are the Sliders that either add or diminish the Size of the Doors or Entrances into the Hive. In the Winter they should be shut almost close, to keep out the Cold; in the Summer draw them out as far as you can, to give the Bees more Air, and a free Passage in and out of the Hive.

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No. 4.

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INTRODUCTION.

THE following Pages would never have made their Appearance in public, had it not been at the earnest Solicitation of several Gentlemen and Ladies who have made the Management of Bees their peculiar Study and Entertainment, and who, on favouring me with their Commands for my new-invented Hives, have frequently hinted to me that a Treatise on my own peculiar Method, with an Explanation of the Use of the Mahogany, Glass, and Straw Hives, would meet with a favourable Reception at their Hands. The Obligations I think myself under to my numerous Encouragers, have induced me thus far to point out the most rational and beneficial Manner of managing Bees; and I hope that Part of my Readers for whose Use it is principally designed will kindly accept my Endeavours to satisfy them on this Subject.

That

That the Majesty of our Almighty Maker is manifested in every created Being, is a Fact absolutely indisputable; but that it is more peculiarly so in the Insect which is the Object of the present Discourse, must be allowed by every one who will give themselves Time to reflect upon the nice geometrical Proportions (obvious to every curious Observer) in which the Bees so wonderfully display their architectural Skill in the Formation of their sex-angular Comb; nor is their well-regulated System of Government, their Labour, and every Property with which they are endued, less deserving our Admiration.

To expatiate upon the Excellency of Bees, their Name, Definition, Description, Politics, &c. would require much more Room than a Book of this Size will admit of; and as these have been treated of at large by others, I shall only quote their Opinions where they coincide with my own, and principally confine myself to the following Particulars.

COMPLETE GUIDE, &c.

CHAPTER I.

DESCRIPTION of the NEW-INVENTED HIVES,
and the manner of Using them, so as to take
the Honey and Wax without destroying the
BEES.

NUMBER I.

PLATE I.

The flat-topped Straw Hive, with Slider.

THIS Hive though of a very plain
Construction, and easy Price, is ex-
tremely convenient and beneficial, and the
Advantages arising from the Use of it are
such as must appear obvious to every one at
first Sight; for it not only gives us an Op-
portunity of taking a treble Quantity of
Honey to what we should otherwise do, but
is likewise a great means of preserving the
Bees in the Winter.

This Hive is principally designed for the
better taking the Honey and Wax, (without
killing the Bees) from the common round-
topped Straw Hives, in which Bees are kept
in most Parts of the known World, and is to
be used in the following Manner :

B

When

When the Bees swarm, let them be hived in a common round-topped Hive, and set upon the Stand, or in the Bee-house in the Garden, and let them work in that Hive about three Weeks, in which Time, if the Season is good, and the Weather favourable, they will have filled that Hive as full as possible. Was it to stand in that Manner the whole Season, they could never fill it with Honey and Wax, as there must be Room in the Hive to contain themselves.

Therefore, in order to have your Hive compleatly filled, and the Opportunity of taking it away without injuring the Bees, at three Weeks End, if you find that your round-topped Hive is well stored, and the Bees want more Room, let it be lifted up gently in the Evening, and place under it one of my flat-topped Straw Hives. Either draw back the Slider (*d*) till it is clear of the Grate, or take it quite out, and be careful to place the Door of your common Hive directly over the Grate, and let it and the Vacancy be stopped up close with Clay or Mortar; at the same Time plaister a little round the Skirts of the Hive, as by so doing you will keep out the Moths and all Kinds of Vermin.

If the Weather continues favourable, you will in a short Time perceive the Bees want more Room; then (but not before) let them be lifted up again, and add a second flat-topped Straw Hive, using the same Precau-
tion

tion in placing it properly as before directed for the first.

In the Course of a Fortnight or three Weeks you may examine whether the Bees have worked themselves out of the upper Hive, and if you find they are all got into the under Hives, it will be a sufficient Proof they have finished their Works above, as they never entirely quit the top Hive before it is filled with Honey: then shut to the Slider (*d*) to cut off their Communication with the top Hive, thus filled. If you should find a few straggling Bees left in the top Hive, when you go to take it away, you may very easily get rid of them, by letting it remain a few Minutes on the flat Hive after you have shut to the Slider; but don't forget to unstop the Door of the top Hive, and then the Bees (if any) having no other Way, will come out at it, take a flight in the Garden, and, on their Return, enter at the Door of the bottom Hive as usual: you may then take the top Hive of Honey entirely away. Or, if you take the Hive at first eight or ten Yards from the Place where it stood, turn it Bottom upwards, and shake it gently to disturb the Bees, they will very soon leave it, and fly Home to join their Companions in the other two Hives. The middle of a fine Day is the most proper Time to do this, because the greatest Part of the Bees are then out at work.

When you have taken the first round-topped Hive away, you may put another

round Hive in its Place, or set on a glass Globe and draw the Slider back again, and the Bees (when they have no more Room below) will go up and fill it as they always lay their Honey at the top of the Hive or Colony, and work downwards; and by the Means of the Slider (*d*) you can take the top Hives or Glasses of Honey away as fast as they can fill them. But if you intend the Swarm to work in a Glass at first, the best way is to hive them in the flat topped Hive; let the Slider (*d*) be shut close to prevent the Bees passing through when hived into it: When they are settled in the Evening move them into the Bee-House, or Place where you propose them to stand, draw back the Slider till it clears the Grate, and set on the Glass, which must be covered with a round topped Straw Hive, No. 1. Plate V. to darken it, except at such times as you chuse to admire the Bees at work in the Glass; when the Glass is completely filled with Honey the Bees will leave it, to work below, then shut to the Slider (*d*) and take the Glass of Honey away, you may then set on another Glass, or take the Honey out of the same, and replace it, and the Bees will fill it again as before.

So much for Swarms; now for the old Stock.

About ten Days after it hath turned out the first Swarm, which in general will be in the Month of *May*, you must raise it upon the flat-topped Straw Hive, to prevent its swarming again; for second and third Swarms
are

are very small, and of little Worth, but they weaken the old Stock very much. When you perceive they want more Room, add another flat Hive: By this Means you will prevent their swarming, enrich the Colony, and enable yourself to take their old Hive-full of Honey, as soon as they have worked themselves down in the bottom Hives, by shutting to the Slider (*d*); you may then set on a Glass in the same Manner as before directed for the Swarm. Never raise them after the Month of *August*; but on the contrary, if they have not done much Work in the bottom Hive, it should be taken away, and set carefully by until the next Spring. Keep the Bees in as little Compass as you can, during the Winter, that they may be the better able to defend themselves against their Enemies and Robbers.

By proceeding in this Manner, you keep the industrious Bees continually supplied with Room, as they would much rather work than lie idle, and you likewise have the Opportunity of taking away the Honey and Wax as fast as they can gather it. I cannot be certain in the Quantity you will take, as it depends so much upon the Goodness of the Season, which sometimes will admit of only taking one Hive, sometimes a Hive and Glass and possibly more. This is to be done in the Months of *May*, *June*, and *July*. I would never recommend the taking away more Honey than the Bees can spare after *July*, lest the Autumn should prove unfavourable, and the Bees want it for Sustenance in the Winter.

NUMBER II.

PLATE I.

*The Mahogany Hive, with Partitions, and
Glasses on the Top.*

THIS Hive is of a very curious and elegant Construction, suitable either for the Parlour or Chamber, and is one of the most ingenious Productions, for the Purpose for which it is intended, ever yet invented: There are five Glasses on the Top of it for the Bees to work in, which are to be taken away when filled with Honey. To prevent the Bees getting out on removing these Glasses, you may shut them in with the moveable Buttons, or place fresh Glasses in the Room of those you take away. Thus, besides the Opportunity it gives of taking the Honey in small Quantities, and having it always fresh and pure, you will have the agreeable Entertainment of observing the curious Manner in which they construct their Combs, and with what nice Order and Sagacity they deposit their Honey. The Hive itself is square, and is provided in the Inside with three sliding Partitions (g g g) in which the Bees are obliged to work, if you do not continually supply them with Glasses on the Top; and you have also the Opportunity of seeing them at work in the different Partitions, by Opening the Side Doors, as the Bees are inclosed with large Panes of Glass on each Side.

When

When you perceive the Bees in this Hive to want more Room than you can conveniently give them with Glaffes, shut to the Sliders at the Doors or Entrances of the Hive, and let it be raised on the flat-topped Mahogany Hive, No. 1. Plate 2. There are two Wires fixed in the Top of this Hive, and fitted into two Holes at the Bottom of the upper Hive, which keeps them steady. When you have properly placed the Hives, draw out the Slider at the Bottom of the upper Hive, 'till it corresponds with that in the Top of the flat-topped Hive (*b*), that the Bees may have a free Passage down through the Grate; then open the two Sliders at the Doors or Entrances of the Bottom Hive, and the Bees will go out at them to work the next Morning.

The Method of taking the Comb out of the Partitions is thus; When they have filled one Partition, they leave it, and go to work in another; you may then take the full one, and having emptied it by cutting out the Comb, put the Partition into its proper Place, again. The Bees, in the mean Time, will continue to work in the other Partitions and bottom Hive till they have filled them, and will then return to the empty one. It may sometimes happen that a Comb projects a little over the Edge of a Partition, so as to obstruct its coming out; but this Obstruction will be removed entirely, and you may with Ease draw out the Partitions as fast as they can

can fill them by taking out the narrow upright Sliders (*b b b b*) between the Partitions: So that notwithstanding the Smallness of the two Hives, the Bees will never cease working through want of Room, as is frequently the Case in other Hives.

To use this Hive, you must first have a little Shelf fitted to the Bottom of the Window where you propose to have it stand, and take Care to place it quite even and close to the Sash on the Inside, in the Bottom of which there must be little Holes cut out, answerable to those in the Hive made by the Sliders. The little semicircular Board must be fixed on the Outside, quite even with the Bottom of those Holes, that the Bees may have a free Passage in and out.

When you hive a Swarm into one of these Hives, open one of the Side Doors, and take out the Glass, which is only fastened in with Tacks, and securing the other Doors and the Buttons on the Top, hold the open Side of the Hive under the Bees, and shake them into it, as you would into a common Hive, and they will take to it equally the same. In the Evening, when the Side Glass is replaced, move aside the Buttons, and set on the Top Glasses; then put on the Mahogany Cover, (No. 2. Plate 2.) that they may be properly darkened, otherwise they will not work in them at first; but you may afterwards look at them as often as you please.

N U M B E R III.

P L A T E I.

*The Mahogany Hive with Glasses on the Top,
without Partitions.*

THIS Hive answers every Purpose of seeing the Bees work, but we have not the Opportunity of taking the Honey so often out of the Hive itself, as from that of No. 2. with the Partitions; nor indeed will it be necessary to do it oftener than once in two Years, as there cannot possibly be a more convenient Way of taking the Honey in small Quantities; and having it always fresh and pure, than that of the small Glasses on the Top; and if you are not sufficiently supplied with the Change of Five, take the middle one away, and set in the Place of it the circular Glass, No. 3. Plate II. which is open at both Ends. On the upper End there is a round Board, in which there are seven Holes, for Communication with the Glasses that are set thereon: by this Addition, the Bees are furnished with more Room; and there is not the least Doubt but they will afford you a greater Supply, only take Care to darken them with a deeper Cover. The principal Reason for taking the Honey out of the Hive once in two Years, is, that the Combs therein may be taken out while they remain white and fine.

This Hive is likewise square : *i*, the Side that is to be placed against the Window, to which it must be fixed quite close, in the same Manner as before directed for that of No. 2. There are Doors in the other three Sides, and the Bees are inclosed with large Panes of Glafs. When you open these Doors, and take the Cover off the Glasses on the Top, you have the most entertaining View imaginable of the Bees at work in the Hive itself; as well as in the Glasses, which are to be taken away as fast as the Bees fill them with Honey. At the Bottom of this Hive there is a broad Slider, which must be taken out when you hive the Bees, instead of taking out one of the Side Glasses. When you would take the Honey from the Hive itself, or give the Bees still more Room, in the Evening shut to the narrow Sliders (*kk*) and let the Hive be raised upon the flat-top'd Mahogany Hive, No. 1. Plate II. Draw back the Slider *b*, likewise the Slider at the Bottom of the upper Hive, and the Bees, if the Weather continues fine, and you don't supply them with Glasses on the Top, will very soon work themselves down into the bottom Hive; you may then shut to the Slider *b*, and take the top Hive away. When you have taken out the Honey and Wax, let the Hive be made clean, replace the Glasses on the Top, and set it on the flat-top'd Hive again; then draw back the Sliders, and the Bees will go up to work as before.

N U M-

NUMBER IV.

P L A T E I.

The flat-topped Straw Hive, with Glasses on the Top.

THIS Hive is admirably well contrived for the Garden. It is provided with eight Glasses on the Top, where the Swarm generally begins to work. You may place more as you see the Bees increase in Number, by taking away the middle Glass, and putting in its Place the circular Glass, No. 3. Plate II.

If the Bees remain in the additional Set of Glasses after they have filled them with Honey, it will be a certain Proof they want more Room; therefore, in such Case, let this Set be raised upon a larger one of the same Sort, and the Bees will presently quit the above to work in their new Habitation. These additional Sets of Glasses will form a very elegant Pyramid, and, when well furnished with Bees, will have a beautiful Appearance. They should always be kept covered over with a large round-topped Straw Hive, to darken them, unless at such Times as you would chuse to see their Manner of working. The Method of taking the Honey by the Glasses is as before directed, only, as there are no Buttons to the Top of the Hive, you must

always have a spare Glass ready to place in the Room of that you take away. If there should be a few straggling Bees in the Glass thus taken away, set it Bottom upwards, in a shady Place a little Distance from the Hive, and the Bees will soon take Wing, and fly to join their Companions. About the Month of *July*, this Hive should be raised upon one of my flat-topped Straw Hives with the Slider, otherwise the Bees will not have sufficient Room to store Honey enough for their Subsistence in the Winter.

When you put a Swarm into this Hive, put a Board over the Holes, to prevent the Bees passing through when you shake them into it. As soon as the Bees are settled, in the Dusk of the Evening, take off the Board and slip on the Glasses, covering them over as before directed; then move them into the Bee-House, or Place where they are to remain.

I have thus far acquainted the curious Reader with the real Uses of my new-invented Mahogany, Glass, and Straw Hives, so much approved of by the Nobility, Gentry, and others, and by which the Lives of those useful industrious, and admired Insects, the Bees, are saved from that cruel and barbarous Way of smothering them with Brimstone, to take their Honey. The next Thing that will be wanted is a proper Bee-House for the Straw Hives;

Hives; therefore, in the following Chapter, I shall fully describe one that I have found by Experience to answer every Purpose I could wish, for my Straw Hives; and as Bees even in common Hives, at all Seasons of the Year, require to be sheltered from the Violence of the Weather, I would recommend it for them, for in the End it will be found not only the best, but the cheapest Way of preserving them.

CHAPTER II.

*DESCRIPTION of the new-invented BEE-HOUSE,
and its most proper Situation.*

I Shall here give a very useful, easy and cheap Method to make a Bee-House upon a new Construction, for six Hives or Colonies.

First, get two Boards, one Inch and a Half thick, twenty Inches wide, and seven Feet long. These Boards are for the Two Ends. Then measure ten Inches from the End you propose to stand upon the Ground, and nail a Ledge strait across the Board, as it may be a Means of keeping it from warping, as well as to support the first Shelf; then measure from this Ledge three Feet more, and nail another in the same Manner, to support the other Shelf; then put two Ledges on the other End Board, to correspond with the former

former, and get two Shelves five Feet long, an Inch and a Half thick, and ten Inches wide; let the Ends be made square, and both the Shelves exactly the same Length; then set the two End Boards upright, and lay the Shelves upon the Ledges, and in the Middle of the End Boards, and nail them all firmly together. Having thus got both Ends of the House upright, and the two Shelves(*gg*, No. 6. Plate II.) fixed therein, Weather-board the Front. Let the bottom Edge of the first Board in each Part of Weather-boarding (*bb*) be put six Inches above the Shelves(*gg*) and project forwards with a Descent four Inches, to keep the driving Rains from the Hives; the Rest of the Boarding to go upright in the common Way: *i* is the Roof, to be made sloping, and cover'd to your own Mind, either with Weather-Boarding, Tiles or Slate, but take Care they are so placed as to let no Wet go through to the Bees. It will not be amiss to fix a little Gutter along the Front, to carry off at one End the Water that will run down the Roof. You now want two folding Doors at the back Part, to shut close together, which may be made of Half-inch Deal fram'd: let them be put on with Hinges, and fastened with a Hasp and Padlock on the Outside. We will now suppose the House compleatly finished, and, with a good Coat of Paint it will last for many Years.

I shall

I ſhal now give a few Reaſons for making my Bee-Houſe on ſo different a Conſtruction to what has been propoſed by other Authors. You'll obſerve, that I recommend the ſetting of each Hive or Colony upon a round Board, the Diameter of which ſhould be ſixteen Inches (to contain the Hive) with a ſemicircular Projection, and that Board upon a Shelf that is only ten Inches wide; for the Bees, when placed upon a broad Board, have a ſtrait Road to walk upon from one Hive to the other, and the ſtrongeſt Stocks are continually robbing the weaker ones, if they don't kill them at the ſame Time, which very likely may be the Caſe, for they will fight to protect their Property, ſo juſtly purchaſed by their hard Labour. But ſuppoſing them to be only robbed, at a Time of the Year that they can not provide for themſelves, they muſt certainly die through Want. But this Method of robbing is prevented by the broad circular Boards (*ff ffff*) that are placed upon the narrow Shelves (*gg*); for there is nothing for them now to walk upon, unleſs they go round by the narrow Shelf, which is a very impracticable Road, and too great a Journey for them to walk. Another Advantage is, that when you want to cleanſe, repair, alter, or remove your Houſe, or do any Thing to the Hives, you can in the Evening take out the Hives and Boards all together, without diſturb- ing the Bees in the leaſt. With

an House on this Construction the Bees are kept warm and dry in the Winter, and in the Heat of Summer are greatly refreshed by the cool Breezes that will draw in and circulate between the Hives.

The properest Situation for a Bee-House, is where the Bees may enjoy the chearing Rays of the Sun, and not be too much exposed to the Wind; it should face somewhat to the South-West, and be properly fixed to Posts driven in the Ground for that Purpose, least it, should be overturned by the high Winds. Many indeed have prescribed that the Hives should be placed with their Doors or Entrances toward the East, that the Sun may shine on them in the Morning, and make the Bees more early to follow their Work; but, upon Experience, I would recommend the setting of them more towards the West, that, being often late at their Work, they may have more Light (their Eyes being weak) to enter their Hives, and also that they be not prejudiced by the Easterly Winds, which are cold and hurtful. Some Bees will be late at their Work after Sun-set, and if, when they return, they find it dark about the Hive, they must lie abroad, if not altogether perish, which would be very often the Case if the Mouth of the Hive faced the East. It may indeed sometimes very properly face towards the South, but never on any Account towards the North.

Let the Bee-House be near Home, for the better Opportunity of inspecting it, and in a convenient Place where it will not be incommoded by the dropping of Water from the Eaves of Houses, Trees or Hedges. Smoke is also very offensive to Bees, therefore Care must be taken not to let them stand near Brick-kilns, Brew-houses, or any Place where a long continuing Smoke may beat down upon the Hive. Let your Bee-Garden, or the Ground adjoining to it, be planted with Plumb, Cherry, Apple, Pear, and Gooseberry-Trees, and interspersed with Beds of various Kinds of Flowers, such as Daffodils, Violets, Primroses, Stock Gillyflowers, Strawberries, Broom, Sage, Marigolds, Archangel, Hawthorn, Elder, Dewberries, Origanum, Hyssop, Borage, Parsley, Mustard Seed, Red Roses, Thyme, Pennyroyal, Holyoak, Lavendar, Eyebright, &c. Dutch Clover, and Fields of mowing Grass, where there is a Succession of Flowers, is excellent Pasture for them.

Among the various Flowers already enumerated, in which the Bees take the greatest Delight, I have mentioned the Broom Flowers as one, but, as there are two Kinds of Broom, I think it necessary to observe, that the *Spanish* is much preferable to the *English*, on Account of the Sweetness of its Flowers, which perfume the Air very agreeably, and from which the Bees extract more Sweetness than from any other Sort I have mentioned; and, when

the Bees have Flowers suitable to their Taste, I have known them fill their Hive, both with Wax and Honey, in about a Month or five Weeks, if the Season has proved fair and pleasant.

Though Bees collect good Honey from most Herbs and Flowers, yet, as there are many which may be very prejudicial to the Honey, Care should be taken to remove the Plants which afford noxious Juices, such as Hemlock, Nightshade, Red Poppy, Feverfew, Black Briony, &c. &c.

Boxwood and Yew should likewise have no Place in the Bee-Garden, as the Juices imbibed from those Plants will give the Honey a bitter disagreeable Flavour; as is the Case with the *Corſican* Honey, taken Notice of by *Diodorus Siculus* and *Pliny*, the former of whom affirms that the Box Trees of *Corſica* corrupt, and embitter the Honey, which makes *Virgil's Lycidas* wish:

Sic tua Cynæas fugiant examina Taxos.

—————So may thy Bees refuse

The baneful Juices of *Cynæan* Yews,

And *Pliny*, speaking of the Excellence of Wax, after mentioning the *Punic*, the *Pontic*, and the *Cretan*, says, “*Post has Corſica (Cera)*”
 “*quoniam ex Buxo fit, habere quandam Vim Me-*”
 “*dicaminis putatur.*”—“After these the *Cor-*”
 “*sican* Wax, because it is made from the Box”
 “Tree,

“ Tree, is reckoned to have a certain medicinal Virtue.”

We are told by a late Writer, that, when *Corfica* was subject to the *Romans*, a Tribute was imposed upon it of no less than two hundred thousand Pounds of Wax yearly; but this is no Proof of the Excellence of their Honey, which, according to *Ovid*, was of very ill Account, and seems to be rather the Reason why the tributary Tax was exacted in Wax preferably to Honey.

CHAPTER III.

*Of the proper Method of Swarming and Hiving
BEES.*

THE Time of Bees swarming is generally in the Months of *May* and *June*, and sometimes in *July*, but the latter is very late, and is commonly called a Cast or Colt; they are fewer in Numbr than the earlier Swarm, and seldom live through the Winter without feeding. They should be hived in rather smaller Hives than the first Swarms, that, by lying closer together, they may the better nourish and keep themselves warm.

The Hours of their swarming are for the most Part about Twelve o’Clock at Noon, never before Nine, and seldom after Four in

the Afternoon. We may give a pretty tolerable Guess that their Swarming is near, by the uncommon Number of Bees at the Mouth of the Hive, which may very probably hang down below the Board on which it stands; and if, by listening at the Hive at Night, you hear a different shrill Note which is made by the Queen, you may depend they will swarm the next Day, if the Weather be dry and warm.

The Swarm which leaves the Hive does not consist of young Bees only, as many have affirmed, for I am confident that they go out promiscuously, old and young together.

If they work a Comb under the Board, as is sometimes the Case, it is a certain Sign they will not swarm; when this happens, raise the Hive, and put one of my flat-topp'd sliding Hives under it; then gently sweep them down that hang under the Board, and destroy their works, and the Bees will take to the bottom Hive.

Always choose a Hive proportionable to the Size of your Swarm, and prepare to hive them as soon as possible, lest they should rise again, and to prevent another Swarm joining with them.

'Tis not unusual to ring a little Bell, or tinkle a Brass Pan, at the Time they swarm; It is likewise a common Method to dress the Hives with Honey, Balm, &c. I mention these because they are Customs of long standing. The tinkling of Bells is of little Use,

as the Bees will always settle near the Hive ; and as to dressing the Hives, I by no Means recommend it, as the Bees like a clean new Hive much best.

If the Swarm should rise in the full Heat of the Day, and the Sun shines hot upon them, they will not continue long in their first Situation ; for when they find they have got all their Company together, they will soon uncluster, rise again, and fly to some particular Spot which has been fixed upon for that Purpose by detached Parties, who return and acquaint the Swarm therewith. But if no convenient Place can be found before their swarming Time for that Day is over, and the Bees still continue unhived, they will hang there till the next Day ; therefore I would advise to hive them as soon as possible, for, if the Day is not too far spent, they will immediately set to work in their new Habitation, and not only make a considerable Quantity of Comb, but also fill much of it with Honey before Night.

The Manner of Hiving them must be regulated chiefly by the Nature of the Places upon which they alight. If they settle on a dead Hedge, or upon the Ground, set a Hive over them, putting Props under it if necessary, and with a large Spoon, or Brush of wet Weeds, stir them softly underneath, and they will go in. If they should happen to settle upon a small Bough, you may cut it
off,

off, and laying it gently on a Cloth, place the Hive over them; or, if you cannot conveniently separate the Bough from the Body of the Tree, you may shake or sweep them off into the Hive. If the Sun shines hot upon it, shade it with a few Boughs; but let it remain near the Place where the Bees settled till the Evening, at which Time move it to the Bee-House or Place where it is to remain.

If they have hung for a considerable Time to the Place where they first settled, you will perhaps find it difficult entirely to disengage them therefrom, as they will neglect their Labour, and hanker about the Place for some Days afterwards. The best Method to prevent this is, by rubbing the Branches with Rue, or any Kind of Herb disagreeable to them.

Swarms seldom return Home again when they are well settled, and if you find them inclinable so to do, depend upon it some Accident has happened to the Queen, which you will easily perceive by their mournful murmuring Noise, running in a distracted Manner before and about the Sides of the Hive. When you observe this, immediately seek about for her, beginning at the Stock where she rose, and pursuing the Track the Swarm took at setting out; you will seldom miss of finding her, for she is never alone, but encompassed with a Guard, who would sooner perish than leave her in danger.

When

When you have found her, take her up gently, and carry her to the Swarm, and you will soon find the Cause of their Dissatisfaction removed by the Arrival of their Queen.

The greatest Care imaginable must be taken to have your Hives clean and neat, free from loose Straws or other Obstacles, which will create great Trouble to the Bees, if left to them to remove.

CHAPTER IV.

Of separating the Honey from the Wax.

WHEN you would separate the Honey from the Wax, take it into a close Room, rather warm than otherwise, that the Honey may drain the more freely, and keep the Doors and Windows shut, to obstruct the Bees Entrance, or else they will be very troublesome, and fetch Part of the Honey away again.

Lay aside such Combs as have young Bees in them, as they would give your Honey a bad Flavour.

When you have thus separated the Combs and the Bee Bread, which should be melted with the Wax, let such as are very fine be nicely drained by themselves without the least pressing whatever, only divide each Comb in such Manner that the Cells may be open

open at both Ends, and place them upon a Sieve or coarse Cloth, that the Honey may drain off pure and undefiled.

The Remainder of the Combs from which the Honey has been thus drained, together with those which contain the Bee Bread, must be put into a coarse Cloth, and squeezed or pressed to get the Honey all out: This will make it inferior in Quality, and unfit for many Uses, therefore it should be put in Pots by itself, to feed Bees with, for which Purpose (on Account of the Bee Bread that will be mix'd amongst it, which is necessary to their Subsistence) it will be better than pure Honey. Then the Remainder, with all the empty Combs, and those with the young Bees in them, which you had laid aside, should be put into a Copper with clean Water; make this boil gently over a slow Fire, keeping it constantly stirring. When it is melted, run it through a coarse Cloth or Bags made for that Purpose, and put it into a Press to separate the Wax. Let the Wax run from the Press into a Vessel placed under it, into which put some Water to prevent the Wax from sticking to the Sides. If this Process of Boiling and Pressing is repeated twice or even three Times, the Wax will be much purer and consequently of greater Value. Set it in a Place where it may cool by Degrees, in Pans of the Size you would chuse your Cakes, with some Water in them, to prevent its adhering to the Sides.

CHAPTER V.

Of feeding Bees in the Winter.

MANY Things are necessary for the Preservation of Bees, but more especially you must take Care to provide the light Stocks with a sufficient Quantity of Food, which they are often unable to attain by their own Industry, either through the Inclemency of Seasons, the Weakness of the Stock, or the Spoil made by their Enemies; and, sometimes, by the ill-judged Management of their Owners, who, through Ignorance or Covetousness, by robbing them beyond the Bounds of Reason, do not leave a sufficient Quantity in the Hive to support them at such Time as they are unable to provide for themselves. By this last unjust Way of Proceeding, these poor industrious little Insects are absolutely starved, and their greedy Masters deservedly experience the old Proverb, that *too much Covetousness breaks the Bag*.

It is impossible to ascertain what Quantity of Honey will serve a Hive of Bees the whole Winter, because the Numbers in the Hive may be more or less, and because in some Years the Spring is more forward than in others; but the best Method to supply the weak Stocks, if in one of my flat-top Hives, is to place a reserved Hive over it, with as

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much Honey in it as you think necessary; then pull back the Slider, and the Bees will supply themselves.

There is a proper Machine (No. 4. Plate II.) for the Mahogany Hives. This Machine is made of solid Mahogany. There is a large Cavity turn'd out betwixt the edge and the center Hole, which are both of the same Height: Fill this Cavity with Honey, over which lay the thin Bit of Board that is full of Holes; then put the Glass Cover in the Groove, and set the large center Hole in the Machine over that in the Top of the Mahogany Hive, and the Bees will come up immediately to feed, which you will see through the Glass.

But, for the common Hive, you may place under it a Pewter Dish with liquid Honey, covering it with a Paper pierced full of little Holes, through which the Bees may draw up the Honey without daubing themselves.

This Method of feeding them should be used before the Bees are in absolute Want of Food, otherwise they will be so poor and weak that they will not be able to come down. When that happens, it will be necessary to turn up the Mouth of the Hive in the Heat of the Sun, or near the Fire, and to drop a little liquid Honey among them.

By this Means you may preserve the Stock when confined by the Inclemency of the Season; and continue it constantly, till the Weather changes.

To

To prevent the Cold, which would chill and even kill the Bees in the Winter, when they come down to the Bottom of the Hive to feed, I would advise to plaister up the Skirts of the Hiye, and let the Entrance be very small.

Never let the Hives be placed on Stones, for they are injurious to the Bees at all Seasons, by reason of the Extremity of the Cold in Winter, and the intense Heat in Summer.

CHAPTER VI.

Of the Enemies and Diseases to which Bees are subject, and their Remedies.

BEES themselves, in the Autumn and Spring, are very often great Enemies to and rob one another, especially in dry Seasons, when the Honey-gathering is almost over: Then the Hives that are over-stocked with Bees, and have not Honey sufficient for their Provision, will, through Necessity, attack the old Stocks, which are thinned by over-swarming, and carry away all their Honey. In order to prevent this, the best Method I can advise is to stop up the Entrance of the Hive attempted to be robbed, by making it so narrow that only a few Bees can enter at a Time, by which Means the old Stock will be the better able to defend themselves.

One would imagine the Moth to be an Enemy of no Consequence; but herein we shall greatly deceive ourselves; for, upon proper Inspection, we shall find that the Moth is a greater Destroyer of Bees than all the rest of their Enemies put together. She deposits her Eggs under the very skirts of their Hives, and the genial Warmth proceeding from the Bees gives Life to the Eggs, the certain Means of their Destruction. These Eggs, when hatched, produce a small whitish Caterpillar, which spins itself a fine silken Webb, nearly resembling that of a Spider, by which it secures itself from the Bees, who avoid them through Fear of being entangled therein. These Caterpillars soon increase in Magnitude, and enlarge their Nets or Webbs till they can get at the Combs; then thrusting out their scaly Heads, which are Proof against the Stings of the Bees, they make such terrible Havock in the Comb, that the poor distressed Inhabitants, unable to oppose them, are obliged to quit the Hive. The best Way to destroy them is frequently to lift up the Hive in a Morning, and kill all you can see; they in general lay on the Board, and under the very Skirts of the Hive, from whence let them and their Webbs be well cleared.

Mice are likewise very destructive to Bees: sometimes they enter at the Door, but most commonly near the Top of the Hive. If you suspect this to be the Case, set Traps about the Hives.

Wasps

Wasps and Hornets must be destroyed, if possible, either by scalding Water, or placing Lime Twigs before the Holes, when you have discovered their Nests, which will greatly lessen their Numbers. Or place Bottles about half full of Sugar and Water where the Wasps frequent; they will go in to drink, and drown themselves in the Liquor, not being able to get out of the Bottle again.

Spiders must be killed, and their Nets broken down; otherwise they will destroy many Bees, and grow to an immense Bigness.

Carefully clear away Earwigs, Snails, and Ants, and keep the Bee-house as clean as possible from all Kinds of Vermin, more particularly from Millepedes or Wood-lice, which are very great Enemies to the Bees.

The Bees are sometimes seized in the Spring with a Kind of Purging or Scowering: this is occasioned by their feeding too greedily on the early Blossoms of the Elm, which throws them into a Surfeit, and will certainly kill them, unless timely prevented. The best Remedy I have found for this Disorder is, to give them plenty of Honey that hath Bee Bread pres'd amongst it, the more Bee Bread the better; at the same Time pound common Salt very fine, and sprinkle it thick upon the Board underneath the Hive.

CHAPTER VII.

Of the Queen Bee, Working Bee, and Drone.

THE Queen Bee is considerably longer than the common working Bee, and rather larger, but not so large as the Drone. Her Shape and Colours are different from the common Bee: her Back is of a bright black: her Belly, even from the Top of her Fangs to the Tip of her Train, is clear, beautiful, and of a sad yellow, somewhat deeper than the richest Gold, and her Legs are of the same Colour; but the Legs of the common Bees and Drones are black, and their bodies of a brownish Cast. The Head of the Queen Bee is rounder than that of the common Bee, her Fangs shorter, and her Proboscis or Trunk not half so long, so that it would be impossible for her to provide Sustenance for herself, were she ever so industriously inclined, as she would not be able to extend her Proboscis into the deep Socket of the Flower. Her Wings are of the same Size with those of a common Bee, and therefore appear very short in Comparison with the Length of her Body. Her nether Part is much longer and sharper than that of the Common Bee, and she is arm'd with a very long Sting, but is unwilling to put it forth.—By the above Tokens, the Queen may easily be distinguished from the other Bees.

Mr. *Butler*, in his Account of Bees, relates the following Experiment of his own :

“ Two Swarms being put together, the
 “ Bees on both Sides made a murmuring
 “ Noise at first, as discontented ; but growing
 “ Friends, and having agreed which Queen
 “ should reign, and which should die, three
 “ or four Bees brought one of them down
 “ between them, as to execution. She being
 “ taken from the Executioners, and put into
 “ the Hive again, the Tumult began afresh,
 “ and they continued fighting for an Hour,
 “ until the poor Queen was brought forth
 “ slain, and laid before the Door.”

Pliny asserts, that if the old Queen bring forth many young ones, lest the Multitude of Rulers should distract the Commonwealth, they kill the superfluous, and cast them out of the Hive.

It is impossible to ascertain how many young Queens are bred in a Hive in one Season, as the working Bees generally destroy the Cells in which they are bred. It depends in some Measure upon the Fruitfulness of the Queen, but more particularly upon the surprising Instinct that Nature has bestowed on the working Bees, who fix upon as many Royal Eggs (which they find in the common Cells) as they judge will be necessary to become Queens ; they then enlarge and alter the Shape of the common Cells, converting them into royal ones. These Eggs produce
 Worms,

Worms, which the working Bees nurse as tenderly, or rather more so than their own: For the first six or seven Days you may see them enter Head foremost into the Cells, with Nourishment for the Worms; no sooner is one come out but another goes in, and there are always four or five in waiting. This Nourishment or Food is white, with a blueish Cast, and of different Consistencies, suitable to the Age of the Worm, and each working Bee deposits a little. This I know by Experience, having several Times had the Opportunity of looking into the Cells whenever I thought proper, and I always found this white Nourishment increase in Quantity every Day, until the working Bees covered up the Cell; after which I could see no more, in regard to the different Changes and Forms they assume before they become Bees. But it is evident that, when the working Bees close up the Cells, the Worms therein are big enough to feed themselves on the Food they have in Store.

I have often taken Notice that an old Stock of Bees, in the Months of *May* or *June*, shall have only one Queen; and at that Time, by searching the Combs, I have sometimes found four or five young Queens in different States, but in general not more than two or three: The first just ready to come out of the Cell; the second in the Shape of a Bee, but has been a Fortnight before it came to Perfection.

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the rest appeared as Worms, different from those of the common Bees, were in Royal Cells, and came to Perfection in about three Weeks. I have further observed, that, when the young Queens come to Maturity, they leave the Hive and go with the Swarm, from which it is evident that there is at no Time more than one Sovereign permitted in the Hive. Some Stocks of Bees will swarm two or three Times in a Season; other Hives will not swarm at all, tho' well stocked with Bees, the Reason of which is, that the Queen has proved unfruitful, and thro' Age or Weakness has bred no young Queens, and without a young Queen there can be no Swarm. I have also observed, that a Hive shall be well stocked with Honey and Bees, and nevertheless they will all die in the Winter; this is occasioned by the Loss of the Queen, for when that happens they will forsake the Hive, and neither work nor eat, but fly about with a confused murmuring Noise, till the whole Hive is absolutely lost.

The Drone is a large Bee without a Sting. Some are of Opinion that it is a working Bee that has lost its Sting; but this is erroneous, for no Person ever saw that a working Bee became a Drone.

Many Reasons are alledged to prove the Drone to be the Male.—1st Because, notwithstanding they are great Wasters of Honey, yet the Bees suffer them to remain quiet till

they leave off breeding, and have conceived for the next Year; afterwards they begin to beat them away, which if they did not, the Drones would of themselves naturally die before *October*; and from thenceforth all the Winter, until the Bees breed again, there is not a Drone to be seen. When they are quite gone, the Bees breed no more that Year, but only nourish and bring forth those that are in the Cells.—2dly. Because the more Drones there are the greater will be the Swarms, and the fewer they are in Number the less Honey will your working Bees produce. Tho' this may not seem reconcileable to Reason, it is an absolute Fact; for if you kill the Drones of a Hive before they have done swarming and breeding, the Swarms will not come forth that were formerly bred, nor will the Stock breed any more, but continuing to bring in their Bee Bread as much as before, and having no young ones to consume it, they lay it up carelessly in their Cells, and take a Distaste to it; and if you should be lucky enough to preserve them till their Time of breeding begins again, yet even then, finding themselves barren, they will forsake the Hive and mingling with strange Bees; go away with them to their Drones.

By this I am convinced that the Bees do every Year breed Drones as well as working Bees; and as there is not the least Doubt that the working Bees are the Females, it follows

follows of Course that the Drones are the Males of the same Kind : and they are bred in the Drone Comb, of which there is one, and no more in every Hive.

The Drones are liberally provided for during the Summer ; but when the Swarms are discharged, and (on the Approach of Autumn) there appears to be neither Time nor Warmth sufficient to rear a new Family, then the Bees begin to persecute the Drones. They are looked upon as useless and chargeable to the Community, and are no longer suffered to continue in the Hives ; they are therefore ejected and killed, both old and young.

C H A P T E R VIII.

Of the Generation of Bees.

AS Authors have differed so greatly with regard to the Generation of Bees, I shall forbear to quote the Opinion of others on this Head, and content myself with some particular Observations, the absolute Result of my own Experience.

That they couple together, I make not the least Doubt, though privily and apart by themselves, which, whether it proceed from Modesty, or through the admirable instinct of Nature, I shall not presume to determine ; for though they were never observed so to

join together, yet they certainly apply themselves to that Business secretly within their Hives, or else abroad where there can be no Witnesses.

I am fully convinced that the modern received Opinion, that the Queen Bee is the general Parent of the whole Stock, is absolutely without Foundation. This I shall endeavour to prove by the following Experiment, which I have frequently made, to discover a Mystery hitherto so uncertain:—I have a Method to make the Bees swarm, by which I have been clearly convinced that the Queen Bee is not the Breeder of the whole Stock. When an old Hive has been well stocked with Bees, and I was in full Expectation of their swarming, I have found myself greatly disappointed, and could not tell in what Manner to account for it. To satisfy myself of the Reason, I took all the Bees out of the Hive, and marched them several Times over a Table covered with a white Cloth, at the same Time moving them about gently with a Spoon, in order to find out whether the young Queen was come to Perfection, but finding only one Queen, I immediately searched the Hive, and found a young one in her Cell, almost ready to come out; and (which more evidently proves that the Bees are not all produced by the Queen Bee) I have several Times cut out the Comb to which the young Queen's Cell was fixed

(No. 5.

(No. 5. Plate II. *e* the Queen's Cell) and stuck it up in another Hive, putting a sufficient Quantity of Bees with it, and observed at the same Time that there were no young Bees in the other common Cells. Being fond of trying Experiments, at the End of three or four Days I took the same Bees out of the Hive again, in order to see if the young Queen was yet come to Perfection, but I found she was only then breaking out of her Cell, in the Manner a young Bird breaks from the Egg, when the Time of its Continuance in the Shell is expired. Upon this I searched several other Combs which were built in the Hive, and observed young Bees in almost every Cell; which is a sufficient Proof that the young Queen could not have lodged them in those Cells, as at that Time she was not come to Perfection herself.

From this Experiment it is evident that the Swarm was satisfied till the young Queen came to Maturity, and that the young Bees must have been produced by the working Bees and the Drones.

I think it admits of no Doubt but that the Drones are the Males, from all the Reasons before cited; and more so from another Circumstance yet unnoticed, which is, that, upon the Dissection of the Body of a Drone, there is a very plain Demonstration that it has the most visible marks of the masculine Gender.

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I am likewise of Opinion that the Queen Bee (so far from being the Mother of all) breeds none but Queens, and that she herself copulates with the Drones, as I have frequently (in the Glass Hives) observed many of the Males attending her at the Times of her breeding, although at other Times they seem to pay less Respect to her than to the common Bees.

CHAPTER IX.

DIRECTIONS to make MEAD of an agreeable Flavour, and much wholesomer than Foreign Wines.

TO every Gallon of Water put four Pounds of fine Honey; boil this Mixture, and skim it while any Scum arises. Into a Hogshead of this Liquor put eight Ounces of Hops, twelve Ounces of Ginger beaten into small Pieces but not pulveris'd, and four Ounces of All-Spice, and boil it about ten Minutes before you take it off the Fire. Put it into a Tub, and, when almost cold, spread a Toast round the Quartern Loaf with sweet Ale Yest, and lay to your Liquor. Two Days afterwards put it into a Cask, and let it ferment, filling it up every Day till it has done hissing, then bung it close down. In about two Months let it be rack'd off from the foul Lees into a fresh Cask, and let it stand in a cool

cool Cellar. If you love it sweet, it will be fit for fining in six Months, but if you let it stand a Year it will fine itself, and be little inferior to Sack. Then bottle it off, and it will not only keep for Years, but improve by Age.

I have thus far compleated my proposed Treatise on the Bees, and if any Difficulty in the Cultivation of them should occur to those Gentlemen, Ladies, and others, who have already or may hereafter favour me with their Commands, I shall always be willing to satisfy them to the best of my Abilities; and constant Attendance will be given at my Warehouse, for the Purpose of supplying their Orders with Bees and all Sorts of my new-invented Mahogany, Glass, and Straw Hives, which are well known to exceed all others; they are so contrived that the Bees may be seen at work in their different Apartments, without the least Danger, or Possibility of being stung. The rational mind will be delighted beyond Conception to see the wonderful works of those admired Insects, who deposit the purest Honey in the Glasses at Top. The Combs are very white, and the Honey of a remarkable fine Fragrance and clear Colour, far superior in Quality to that which is made in common Hives, and may be taken at Pleasure, without hurting the Bees. No Person who has once tasted Honey thus procured, will be able to eat such as is sold in general.

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A great Number of the Hives may be seen in Use at my Apiary on *Highgate Hill*, or at any of my other Apiaries, by giving timely Notice, and one Mahogany Hive, with the Bees working in it, is always kept at my Warehouse in Town for the Inspection of the Curious.—Where may be had genuine Honey of the following Sorts, *viz.* Fine Honeycomb made in the Glass Hives, and a particular pure Sort of Virgin Honey, gathered in the Spring, by my own Bees, and extracted from the finest Combs in the most delicate Manner; this Honey is recommended by the most eminent Physicians for spreading on Toast, &c. it preserves the Lungs, and prevents many of the worst Disorders, and is a certain Cure for several others; particularly the Gravel, Coughs, Hoarseness, Asthmas, and Consumptions. Honey proper for making Mead; Real *Minorca*, *Narbonne*, and other foreign Honey, in Pots of every Size.

F I N I S,